regarded as a description of the physical appearance of this lesion. The ending "-itis" attached to a name expresses an inflammation. The suffix "-itis" attached to linum therefore makes perfect nonsense.

The objection that the lesion does not represent a gastritis in the strict sense of the term can hardly be regarded as valid, inasmuch as sooner or later practically all the coats of the stomach, including the glandular elements of the mucous membrane, are involved and the mucous membrane may in certain cases possibly even be the port of entrance.

It seems, therefore, that the terminology which has been adopted at the beginning of this report or shortly after "cirrhosis of the stomach" expresses best the general anatomical character of the lesion.

SYPHILITIC AORTITIS AND ITS EARLY RECOGNITION.*

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The first anatomical studies of syphilis of the aorta were made by Morgagni in the middle of the seventeenth century. Later studies by Dohle, in 1888, and Marchand, in 1903, did much to arouse interest in this condition, though the proof they offered as to its etiology was not convincing. They described the pathological changes as a mesaortitis and were impressed with the frequency with which these pathological changes in the aorta were associated with evidences of syphilis elsewhere in the body, and presented the view that the aortitic changes were luetic. It was not until the work of Benda, Wright and Richardson that the absolute proof was found and the successful staining of the spirochetes in the arterial wall supplied the missing etiological link. The further application of the Wassermann test and roentgen rays have greatly increased the interest in this highly important condition. In searching the literature on syphilitic aortitis one is impressed with the paucity of information regarding this disease in the text-books, and attention is paid only to the terminal lesions as aneurysm and aortic valvulitis. I can advise one to read Dieulafoy's[1] classical pictures of aortitis, as it is the acme of clinical conciseness. If one wishes to pursue the subject more thoroughly, Allbutt's works[2] should be studied, as they are the most exhaustive in the English language. It would seem that specific aortitis occupies the same position in present medical literature as tuberculosis did thirty years ago, and only the full-blown cases are deemed worthy of note. More attention must be paid to incipient aortitis, as the only hope of cure lies in the diagnosis before gross changes have taken place in the arterial wall.

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* Read before the Montana State Medical Association, July 10, 1918.

FREQUENCY. Statistics on the frequency of luetic aortitis are scanty, but enough work has been done to show that this type of aortitis is very common when diagnosed on the autopsy table but rare when reviewing clinical reports. This discrepancy may be explained in several ways: (1) that aortitis is often a latent manifestation of syphilis; (2) that signs and symptoms of its presence are either lacking or else so insignificant as to be entirely overlooked; (3) that the medical profession has not given this condition sufficient attention and careful examination of the aorta is slighted or else entirely ignored.

There is some excuse for this in view of the fact that the accumulated knowledge on this subject is found only in medical journals and barely mentioned or else ignored in medical text-books. An idea of the frequency of specific aortitis may be gained from Gruber's[4] statistics of 6000 autopsy records, showing aortic lues in 4 per cent. Marchand[5] in a report on 256 autopsies on bodies with acquired syphilis found aortitic lues in 82 per cent. Marchand states there is no doubt many cases of aortic syphilis are mild invasions and subside without doing much damage. Stadler[6] found syphilis of the aorta in 82 per cent. in 156 cases of syphilis. Obendorfer[7] found in 1436 autopsies on adult bodies that 7 per cent. showed aortic lues and in 40 of these the diagnosis was made by the autopsy findings.

The frequency of the association of specific aortitis and tabes and paresis is a well-known observation. Goldscheider[8] in 136 cases of syphilitic aortitis found tabes in 29—other investigations show aortitis in 30 to 40 per cent. of all cases of tabes and general paresis.

In the routine use of the Wassermann reaction in our office I have found 7 cases of specific aortitis in 136 positive Wassermann or luetin tests, 5.1 per cent. This may be low as no doubt some of our cases of positive Wassermanns in latent syphilis may have been cases of specific aortitis—in which we were not able to make a diagnosis.

PATHOLOGY. Microscopic. Syphilis, as shown by Heller, is an inflammation, with reparative reaction, thus differing with atheroma with its atrophy and decay. The spirochete shows its ravages in all three coats of the arterial wall, the invasion taking place through the vasa vasorum. The adventitia is attacked first, then the media, and these coats bear the brunt of the damage. Collections of lymphoid and plasma cells are found and occasionally giant cells; these occlude the vasæ, with resulting weakening of the middle coat. This yielding of the media shows itself later as saccules, bulgings and aneurysms. The cellular collections may show as nodular masses on the intimal surface. These nodules are miliary gummata, showing a tendency to become necrotic in their centers; this, with later absorption, explain the scars and arterial distortions seen in advanced cases. The spirochetes are found with difficulty in the media. Warthin's[3] work has shown that the spirochete is found in cardiac and aortitic syphilis much more frequently than hitherto suspected.

The gross lesions are easily understood in the light of the microscopic changes. Irregular folds and roughenings of the intima—translucent and pearly plaques. These cushions or wheals may be yellow in color. The distinction between atheromatous deposits and luetic changes is found in the absence of fat and calcareous deposits. The two conditions are frequently coincident. Syphilis usually attacks the aorta at its orifice, and when the extension is toward the heart the valves and coronaries usually suffer, with disastrous consequences to this organ. However, the extension may be from the heart, and in this group of cases the damage is usually less severe. No portion of the thoracic aorta is exempt. Rarely is the abdominal aorta invaded. The gross pathological picture includes the characteristic wrinkling of the intima—longitudinal rugæ, thinned out and scarred areas. The more advanced stages are shown by small saccules and aneurysms.

Studies of luetic aortitis have given rise to the important question as to why the thoracic aorta should bear the brunt and why the abdominal aorta should escape the spirochetic ravages. This important point has been elucidated by the anatomical researches of Klotz,[9] who has shown that this selective action of the spirochete is due to the rich lymphatic supply of the ascending and transverse portion of the aorta, which by their proximity to the abundant mediastinal lymph glands are invariably infected by retrograde movements of the spirochete. This explanation, no doubt, explains the arterial localizations, but it does not tell us why the spirochete should show a preference for the thoracic lymph glands rather than for the abdominal glandular areas.

Syphilis of the aorta exhibits several types and different localizations, and a working classification of these types is made by Dieulafoy, who makes the following divisions:

1. When the disease is confined to the first portion of the aorta. Suprasigmoid aortitis.
2. Syphilis of the aortic valves with incompetence.
3. Aneurysmal forms.
4. Obliteration of the coronary vessels.

I will not attempt to deal with all these types but will try and justify this paper by discussing only the first type, and that in its early form. We are all familiar with syphilitic aortic incompetency and the aneurysmal types, but I am sure none of us are sufficiently acquainted with the earlier forms of luetic aortitis in which the disease has not advanced to a stage where the gross changes are easily detected and where careful cardiac examination shows no aortic valve lesion. This is the type that is easily missed and where the chance of effective therapy is considerable. I have had seven cases of this type of aortitis which I have been able to diagnose as specific and will try and show how easy it is to overlook this important clinical condition unless one has it continually in mind when examining any obscure chest case. The symptoms are extremely indefinite and are not clear cut, often not severe enough to alarm the patient, but from the fact that chest symptoms in general are associated in the mind of the laity with tuberculosis, often brings these patients to our offices, with a request for a chest examination. The symptoms of specific aortitis are:

1. Pain. Most frequent symptom. Characteristics:

(*a*) Origin under the sternum, usually at the junction of 1 to 2 portions; or

(*b*) Sense of constriction or compression. This may vary from a feeling of tightness or pressure to the more severe anginal forms; or

(*c*) Radiation into the brachial plexus, with the characteristic arm localization—usually of the left side, rarely of the right side and very rarely both sides.

The etiology of aortitis pain is not definitely settled, but probably due according to Allbutt to the inflammation and irritation of the adventitial coat, which has been shown by Dogrel to have special nerve endings in the connective tissues of the pericardial and adventitial coats of the aorta. Aortitis pain is similar to that in fibrous tissues in general, as acute pleurisy, gout, etc.

2. Indefinite Symptoms:

(*a*) Fatigue. These patients usually are weak, neurasthenic in their complaints, somewhat similar to the group of early tuberculosis; they tire easily. Mental fatigue may be prominent; memory disturbances and headaches are complained of.

(*b*) Dyspnea. This is an important symptom, present in all of my cases. It varies from a mild dyspnea of effort to the more severe types of strident respiration, as in Case III. This symptom, if not associated with pressure signs, is often due to early cardiac insufficiency, which may be luetic.

(*c*) Hoarseness. This is usually associated with pressure of the recurrent laryngeal nerve. In Case III the paralysis was permanent, as was the hoarseness. Pressure on the bronchi may cause respiratory stenosis.

(*d*) Fever. May be present in certain cases. Usually irregular in type. Case IV showed this symptom.

(*e*) Cough. May be present. This is usually dry and unproductive in type.

(*f*) Cyanosis. This is observed in some cases—usually due to pressure on the upper vena cavæ. None of the cases in my series showed this sign. Two cases showed a complexion similar to that seen in chronic nephritis; pale with moderate cachexia.

In the early stages of luetic aortitis any one or more of these symptoms may be present. Usually the symptoms are not clear-cut and not severe. It is easy to understand how the diagnosis of incipient tuberculosis is made in some of these cases. Two of my series had been diagnosed as pulmonary tuberculosis, one of whom spent four months in a sanitarium. Slight, irregular fever; chest pains, indefinite in type, often diagnosed as pleuritic; hoarseness; dry cough; comprised a group of symptoms that could easily be confused with early tuberculosis.

Signs. The signs found in aortitis are of considerable value and upon which the diagnosis is made with certainty. The normal aorta of a young adult man should measure 5 to 7 cm. in the transverse diameter. At the age of fifty years, 8 cm. Somewhat less in women. In aortitis the aorta is enlarged in both diameters. We depend on the alterations in width and contour to make our diagnosis. This change may be detected by percussion, and this should be done as a routine in every chest examination, from without inward, in the second and third interspaces. An increased aortic width will be detected in many cases. There is a group of cases, however, in which no percussion changes will be noted. The roentgen diagnosis is by far the most satisfactory method for demonstrating changes in the aortic arch. The roentgen rays show that specific aortitis may show either one or more of the following changes in the normal aortic curve:

1. Enlargement of the aortic shadow to the right. This is usually the earliest demonstrable change, as this is the portion of the aorta first involved in the syphilitic process.

2. Enlargement to the left, with obliteration of the normal aortic knob.

3. Enlargement both to right and left. Increased density of the aortic shadow is suggestive, as is also reduction of the aortic pulsation when viewed flouroscopically.

The other signs are of doubtful value and I have had no experience with the majority of them. I may mention a few:

(*a*) Palpation of the aorta in the jugular notch.

(*b*) Elevation of the subclavian artery.

(*c*) Undue mobility of the apex, due to elongation of the aorta.

(*d*) Changes in the aortic second sound, resembling an Algerian drum, described by Potain as bruit de tabourka—a clanging second sound.

Blood-pressure is not elevated, as a rule, or only moderately elevated. This is of some value in ruling out the aortic dilatation of hypertension cases.

The aorta should be examined both fluoroscopically and with plates. The plates should be taken in the upright position and at a distance of from six to seven feet. These seven-foot plates give an accurate size of the heart and aortic shadow. The other important diagnostic finding in luetic aortitis is the presence of a positive Wassermann test—about 75 per cent. of specific aortitis cases show a positive Wassermann reaction and a certain percentage of the balance will show a typical luetin test. The presence of a positive Wassermann reaction in the absence of any signs of syphilis should direct our attention to the aorta, and in many cases an early aortitis will either be found or suspected and treatment instituted early enough to forestall the more grave sequelæ which are sure to follow. Warthin[8] has shown that the spirochete may be present in the heart, aorta, pancreas and other organs for years without signs or symptoms of their presence. His findings no doubt explain many cases of so-called latent syphilis, with positive Wassermann reactions.

The final important corroborative evidence is the therapeutic test, and when a group of symptoms clear up under a course of mercury and iodides or an injection of salvarsan a suspicious case becomes a diagnostic certainty and treatment is instituted with the assurance of a permanent improvement or perhaps a cure.

TREATMENT. Treatment, however, may be very unsatisfactory and too much reliance should not be placed on this test. Many of the symptoms will disappear or improve. Pain usually responds to treatment, though not invariably. In all of my cases with pain the response was satisfactory and assisted in making the diagnosis. In Case IV this treatment response aided materially, as the signs were slight and diagnosis was doubtful. No diminution in the size of the aorta need be looked for or expected. Checking further progression of the disease is the most to be expected. The therapeutic expectations are better in these early aortitis cases, however, than in the more severe invasions. In aortic valvulitis the prognosis is bad. In my group of cases the treatment has been symptomatically satisfactory. The ultimate outcome will depend on much longer observation.

CASE I.—Woman, aged fifty-five years. Consulted Dr. Hempstead for hoarseness. She had been diagnosed as an advanced case of tuberculosis by several Eastern men. She gave a history of chronic leg sores, loss of weight, chronic hoarseness, chronic cough and substernal tightness on exertion. Sputum examinations negative. Lungs negative. Aortic arch enlarged to the left. Heart negative. Wassermann 4 plus. After three months' treatment with Hg. and iodides all symptoms were relieved, with a gain in weight of 20 pounds. Three years later still well, having gained 34 pounds in weight, with absolutely no chest symptoms whatsoever.

CASE II.—Man, aged fifty-nine years. Comes for bladder trouble. History of luetic infection seven years ago. No treatment. Examination revealed a well-developed case of tabes. Chest examination showed a dilated aorta, especially to the right. No aortic knob present. Heart showed considerable hypertrophy to the left; "horizontal heart." Aortic first sound replaced by a systolic rumble—a suspicious tracheal tug present. Five months later had a very severe anginal attack, the pain radiating to the right shoulder. Irregular weak pulse. Patient died three months later with double pyonephrosis. Autopsy findings: Large hypertrophied heart. No valve lesions. Aorta large and bulging; no aneurysm. Intima showed linear folds and yellow plaques; wall of aorta very thin in

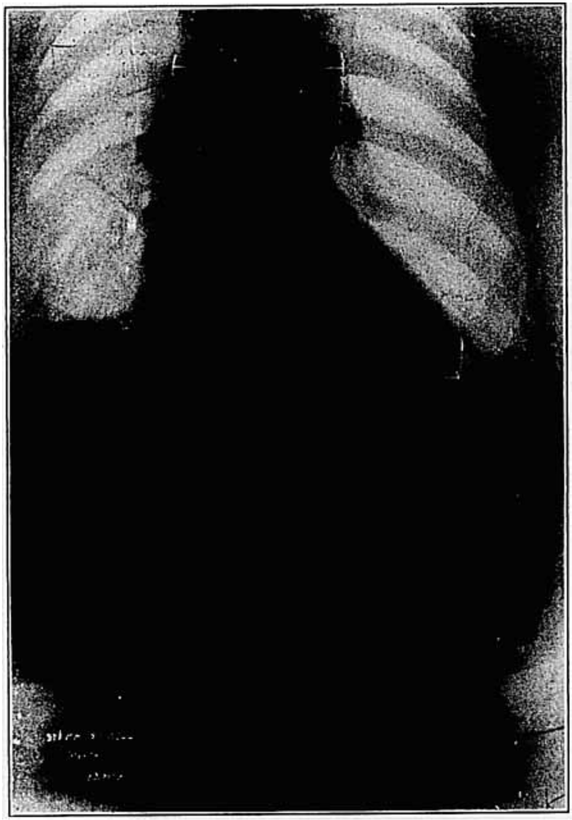

FIG. 1.—Case I. Seven-foot heart plate. Note slight dilatation first portion of aorta and marked in descending portion.

portions. Microscopic examination showed typical picture of moderately early specific aortitis. The lymphoid cells show the characteristic grouping about the bloodvessels in the media.

CASE III.—Man, aged forty-seven years. Comes for hoarseness. He gives a suspicious history of exposure to syphilis twenty-five years ago. Had two and a half years' internal treatment. Ten years ago noticed shortness of breath on exertion and hoarseness. In 1914 had a moderate hemoptysis and was diagnosed as tuberculosis. Was under observation four months, during which time he had no temperature and gave a negative response to the von Pirquet and Morro tests. In 1916 had another attack of hemoptysis and was advised to go to a sanitarium, and was told he had evidences of pulmonary tuberculosis, though he did not cough; had no fever and twenty to thirty sputum examinations were negative. Was discharged in four months as an arrested case. Examination by Dr. Hempstead showed complete left-cord paralysis; no inflammatory reaction. Stereoscopic plates of lungs negative, though a moderately enlarged aortic arch found in a seven-foot heart plate; 7 cm. in broadest diameter. Heart sounds negative. Wassermann test

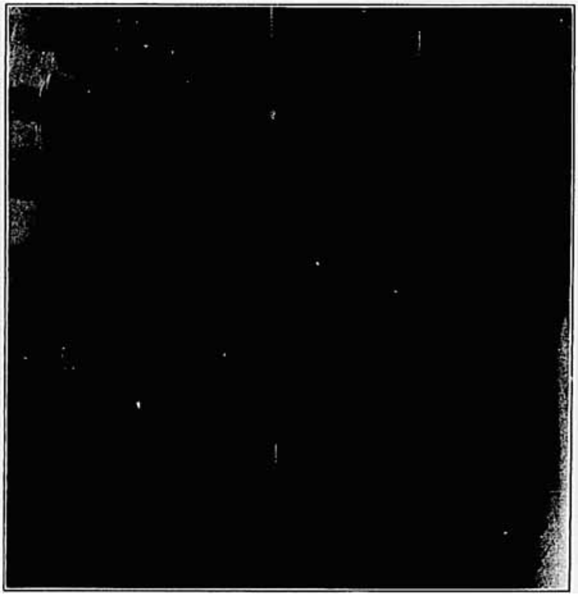

FIG. 2.—Case II. Seven-foot heart plate. Note horizontal heart; dilatation ascending aorta and descending portions. Autopsy showed dilatation most marked in ascending aorta.

negative. Lutein showed a fairly typical positive reaction. This case had no substernal pain nor distress, but showed a constant dyspnea and attacks of difficult breathing. A diagnosis of specific aortitis was made. He is still under treatment, and the response has not been marked insofar as the dyspnea and hoarseness are concerned; but the paralysis is, no doubt, due to a permanent degenerative lesion of the recurrent nerve. Not much improvement was expected. His general condition has shown considerable improvement.

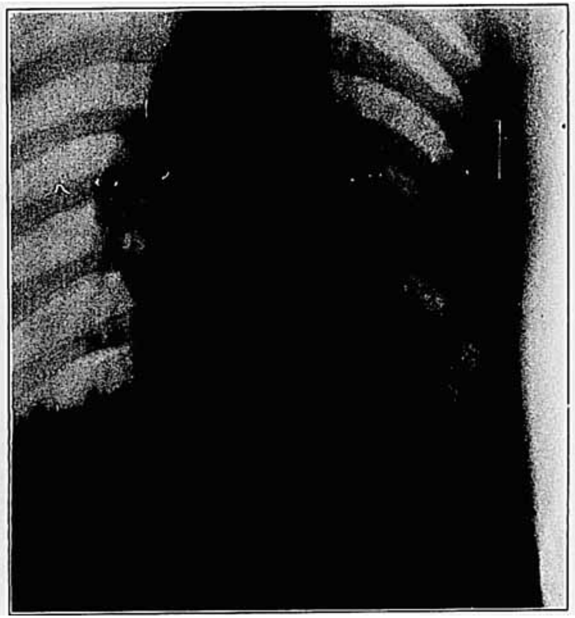

FIG. 3.—Case III. Seven-foot heart plate. Note heart not enlarged. Dilatation and distention; ascending aorta. This case had recurrent nerve paralysis. No aneurysm.

CASE IV.—Woman, aged thirty years. Comes to the office with a previous diagnosis of pneumonia or pleurisy. She gave the history of having had an attack of substernal "tightness" on exertion; pain radiating to the left. Precordial pain on exertion. No cough. Intermittent fever and chilly sensations, marked weakness and some dyspnea. Lung examination negative. Heart not enlarged. Aortic first sound replaced by rough murmur, transmitted to neck. Stereoscopic chest plates showed lungs negative but an increase of right hilus shadow. No enlargement of the aorta. von Pirquet test negative. Wassermann 4 plus. No history of syphilis obtainable, but it was subsequently learned that her husband had been under treatment for lues within the past year. Diagnosis: syphilitic mediastinitis and aortitis. One dose of salvarsan cleared up all symptoms and the first aortic sound was audible on subsequent examination. This case is undoubtedly an acute syphilitic aortitis and the negative findings as regarding the aortic shadow are easily understood.

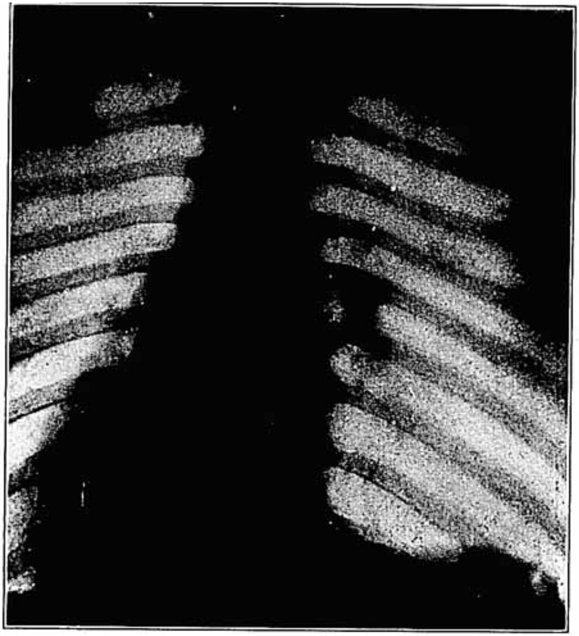

Fig. 4.—Case IV. Seven-foot heart plate. Note no change demonstrable in aorta. Probably aortitis of less than two years' duration.

Case V.—Man, aged thirty-four years. Patient had a specific infection four years previously. Took about 5000 Hg. pills during the course of three years. Three months ago commenced having substernal pain. Worse on exertion. Describes it as a dull burning sensation. Relieved by large doses of potassium iodides. He was also given three doses of neosalvarsan. He was relieved for three years. He returned last month with a recurrence of chest symptoms, and also stating that while exerting himself he had a terrible precordial pain as if a knife were thrust into the heart. He thought he was going to die; this lasted a few minutes. He still has a precordial soreness. Examination: Head and lungs negative. Heart negative. No enlargement; sounds not abnormal. Seven-foot heart plate shows slight aortic enlargement. Wassermann negative. Lutein test not done as patient could not remain in town. Diagnosis: Luetic aortitis.

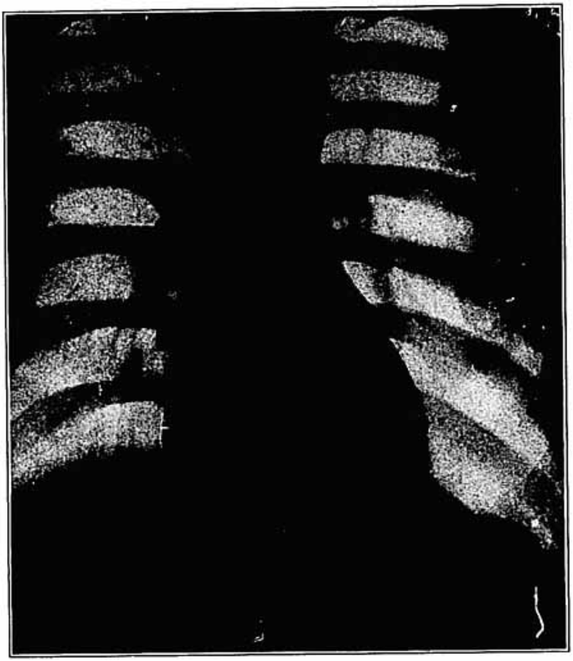

FIG. 5.—Case V. Three-foot heart plate. No change demonstrable in aorta, except slight dilatation of ascending aorta.

CASE VI.—Man, aged fifty-seven years. No history of infection. For the past three years has had indefinite chest pains, worse on exertion; localization not definite. Several examinations negative; no diagnosis made. Patient described these pains as tight and constricting in type and aggravated by exertion. Past few months have become substernal; would come on in attacks. For the past three weeks has been incapacitated; weakness, dyspnea, and pain were more pronounced. No fever; pulse, negative. Blood-pressure $\frac{150}{85}$. Small obese man. No cyanosis. Some dyspnea. Reflexes normal. Lungs normal. Heart shows systolic aortic murmur. Second aortic loud. Some enlargement to the left. Fluoroscopic examination showed enlargement of arch to right. Irregular contour. Urine negative. Wassermann 4 plus. Patient then admitted a chronic ulceration palmer lesion of three years' duration. Two weeks' treatment with mercury and iodides gave symptomatic relief and he has remained under treatment the past year, with entire relief.

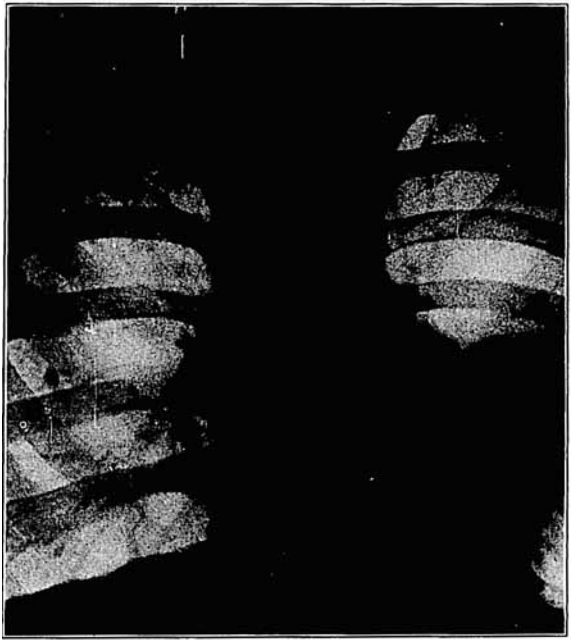

Fig. 6.—Case VI. Three-foot heart plate. No change in aorta. Heart normal size.

CASE VII.—Man, aged forty-six years. Had primary lesion seven years ago. Treated one year. For the past three years has been going down hill, losing weight. Weakness and obscure chest pains. An examination one year ago was negative, with the exception of a strong positive Wassermann. No treatment was instituted. He again reported to the office several weeks ago, complaining of attacks of dyspnea, precordial pain and substernal distress, with mild pains radiating to both shoulders. No constricting pains. Main complaint is weakness, inability to work and presents the picture of a general breakdown. Examination: Small, haggard looking man; some pallor, general physical examination negative. Heart not enlarged. Aortic first sound impure; second aortic not increased. Stereoscopic lung plates negative; arch not increased in width. Liver not enlarged. Urine negative. Blood-pressure $\frac{100}{60}$. Hg. 85 per cent. Talquist. Diagnosis made of luetic aortitis in spite of negative findings regarding demonstrable changes in the arch. Treatment response was speedy and satisfactory.

RESUMÉ OF CASES. I realize that absolute statements regarding the diagnosis of all these cases cannot be made, as the changes in the aortic contour were not always present. I feel, however, that the diagnosis is justified, with the presence of substernal pain, positive Wassermann and treatment response. I believe these are early amenable cases—the type we should suspect and treat accordingly. In Case IV the probable duration of time from infection to onset of symptoms is hard to estimate, but probably not over two years. This time interval may vary from a few months, as in Brooks's[9] cases, where syphilitic aortitis developed during the rescola, to twenty to thirty years. The longest interval in our cases was twenty-five years and the shortest was less than two years.

CONCLUSIONS. Analysis of these 5 cases show several important points:

1. The frequency with which specific aortitis is confused with pulmonary disease.

2. That specific aortitis is not always a late syphilitic manifestation, as note in Case IV probably six to eight months after infection.

3. That practically all physical signs may be absent and the diagnosis will rest on substernal distress, a positive Wassermann test and the therapeutic test.

4. That a positive Wassermann reaction means syphilis, and even in the absence of all outward manifestations of syphilis the aorta should be suspected and active treatment instituted.

5. That a negative Wassermann test does not rule out specific aortitis and a luetin test should be performed and the effect of treatment should be studied.

6. That aortitis should be diagnosed before the more gross pathological changes have taken place, as when that stage is reached usually treatment is ineffective.

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ADENOCARCINOMA OF THE INTESTINE OF UNUSUAL GENERALIZATION AND WITH PECULIAR CYSTIC METASTASES.[1]

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The following case is recorded because of the unusual generalization and appearance of the metastases in the intestinal tract, which had some resemblance to umatosis cystoides intestini or intestinal gaseous cysts of swine and man and also on account of the difficulty of exactly locating the primary lesion.

Case History. The patient, a Chinaman, worked in a laundry and was well up to four months ago. He smokes opium to excess but does not use alcohol. Ten weeks ago he had a Neisser infection.

The present condition began about four months ago with indefinite pains in his left shoulder, abdomen, back and upper part of the thighs. Later the pain settled in the lumbar region and his abdomen began to swell. For two weeks before admission to the hospital he had a severe cough and expectorated a large amount of dirty, grayish sputum. He states that warm food agrees with him but that cold food causes pain in his stomach. Without medicine his bowels move only every third or fourth day.

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[1] Under a grant of the Cooper Fund of Medical Research in McGill University.